



THE AUSTRALIAN PLANT DISEASE RECORDER.

Volume 2, Number 3.

July, 1950.

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CEREALS AND GRASSES:DOLLAR SPOT OF TURF:

Sclerotinia homoeocarpa has not been recorded in Coastal N.S.W. though it is well known in Canberra and in other States. During the past autumn incessant rain resulted in widespread development of turf diseases and, in one case brought to notice, Sclerotinia homoeocarpa was found to have been responsible for destruction of couch grass (Cynodon dactylon) as well as bent grass in a Metropolitan bowling green.

-- L.R. FRASER.

FIELD AND FODDER CROPS:WILT AND STALK ROT OF SUNFLOWER:

Early in February, Sclerotinia minor was recorded attacking Helianthus annuus for the first time in N.S.W.

At Yanco an experiment was carried out where close seeding was tried as a means of reducing the size of sunflower heads to facilitate harvesting with a header. The disease showed up to the extent of 60% in this plot. The symptoms were a wilting of the whole plant as a result of rotting and collapse of the stem just above ground level. An abundance of typical sclerotia was found on both the inside and outside of the stem. The close planting coupled with irrigation, induced very moist humid conditions in the region of the base of the plants, which is conducive to the development of the disease.

This same fungus was recorded previously in the same locality attacking tomatoes in 1929 and peanuts in 1948.

-- J.R. MORSCHER.

POWDERY MILDEW OF FLAX:

While testing the susceptibility of a number of "Imperial Pusa" varieties to flax rust in the glasshouse at the Waite Institute during April - May, Mr. A.T. Pugsley observed a powdery mildew in the immediate neighbourhood of the rust pustules which had developed, but they did not occur elsewhere on these plants. The infections afforded a striking example of what appeared to be the effect of infection with one obligate parasite on susceptibility

to another and also provides the first report known to us of a powdery mildew on flax in Australia. A powdery mildew on flax has been reported from various parts of the world but nowhere does it appear to be of much economic consequence. Allison (Phytopath 24:305-307:1934) who first reported the occurrence of powdery mildew on flax in the U.S.A., came to the conclusion that the fungus he studied should be identified as Erysiphe cichoracearum DC. Our powdery mildew has not yet produced perithecia but measurements of the oidia agree with his account and with those he gives for Oidium lini Skoríc, considered by Allison to be the oidial stage of E. cichoracearum.

--- D. B. ADAM.

BARE PATCHES IN SUBTERRANEAN CLOVER NEAR KEITH. S.A.:

Towards the end of March many roughly circular dead patches were noticed in a thick, even stand of sub. clover seedlings near Keith, S.A. They were most prominent in the thickest stands of clover.

By June 1st the patches ranged from roughly circular spots about 18 inches in diameter to irregularly shaped areas 15 yards or more across. The boundary line between affected and normal plants was very sharply defined in some patches but irregular and indefinite in others due to a gradual decrease in size and number of plants over a marginal zone several inches in width. The older leaves of the thin, stunted clover plants inside the latter type of patch were usually reddish, purplish or brownish and often showed withered margins. Although the lowest leaves and petioles of such plants were more often senescent or rotted than in growth outside the patches, the youngest leaves were often of normal colour.

Lucerne, evening primrose, English dandelion and grasses, with the exception of Bromus seedlings, were little, if at all, affected. Bromus seedlings, however, were stunted and showed yellowish, reddish or purple tints towards the leaf tips.

Affected clovers collected on April 20th showed considerable root rot and yielded fungi (mainly Fusarium spp. and two Pythium isolates) and bacteria. Clovers outside the affected patches yielded a leaf-spotting fungus and fewer bacteria; Fusarium spp. were almost absent from the roots.

Additional clover and Bromus specimens were collected on June 2nd. There were no obvious differences in the degree of root rotting or the number and types of organisms isolated from affected and healthy clovers. Fungi isolated from the roots included

Fusarium spp., Rhizoctonia bataticola and R. solani; bacteria were relatively uncommon. Fungal leaf spot occurred in both lots of plants.

However, the difference between roots of affected and healthy Bromus seedlings was much more marked. Whereas many older roots of the former were rotted back to dark brown stubs, the roots of seedlings from outside the patches were almost free from rot. Roots of affected seedlings yielded R. solani, Helminthosporium sp. and possibly O. graminis.

As yet it is not possible to determine whether the affected patches are increasing in size. Observations indicate that some patches may have become affected last season if not sooner, and are bare this season from lack of seed.

No other occurrence of this abnormality is known to the writers, who would be grateful for any relevant information.

--- W.V. LUDBROOK.

--- D.S. RICEMAN.

--- J.R. HARRIS.

VEGETABLES:

LATE BLIGHT OF POTATOES:

Throughout the last potato growing season, the weather was abnormally cool and wet and most of the Victorian crops were badly infected with late blight, Phytophthora infestans. Every season there is a certain amount of both Alternaria blight, Alternaria solani and late blight, Phytophthora infestans, in the late areas such as Kinglake, Central Highlands and Beech Forest, but last season some of the crops in these areas were so badly infected that the growers did not bother digging them.

Late blight first appeared in the Warrnambool-Koroit area early in December and by the middle of the month the varieties Early Carman and Manistee were almost completely blackened. The varieties Up-to-date, Late Carman and Katahdin were little better, but Sequoia, Sebago and Exton (especially the latter, which was hardly spotted) were still standing up well. (Exton, now grown for certification in Victoria, is a grower's seedling from the variety Katahdin).

The weather improved a little during January and February but the cool, showery weather returned early in March. From a study of the rainfall figures for Kinglake, it is noted that the

average rainfall for March, over a period of 30 years, is 352 points. However, last March 657 points fell on 13 days and some rain fell each day from the 17th to 26th inclusive, the weather during this period being cool, overcast and with intermittent showers. There was no sign of blight on 12th, but by 28th March most of the late Carman crops (in particular) were very badly infected.

However, the heaviest losses occurred in the Central Highlands area where the majority of crops (about three-quarters) are either late Carman or Snowflake. In many of the late Carman crops the tubers were completely broken down by digging time. Snowflake was also badly infected, but in the varieties Sequoia and Sebago, although the tops were finally blighted, there was very little tuber breakdown, especially in the case of the latter. There was no sign of tuber breakdown in several of the new hybrids planted in this area. On the other hand, some of these hybrids were much worse than the late Carmans.

-- D. E. HARRISON.

LATE BLIGHT OF POTATOES:

Estimates of losses caused by late blight (Phytophthora infestans) in some Tableland areas of N.S.W. over the last season have been forwarded by District Agronomists. In the eastern section of the Northern Tablelands, damage was the worst for many years, up to 100% infection being reported. The varieties Sebago and Sequoia showed high resistance in this area. Monak and Adina appeared to have some resistance and, to a lesser extent, Moona. Following good rains in April, severe damage occurred in Central Tableland crops. Losses due to tuber rotting in Factor were estimated at 40-50% in the Orange district. At Blayney, 15% of all tubers were rejected at grading because of rotting. A 10-15% loss was experienced at Mudgee. In a variety trial at Orange, estimates of some losses were Factor 45.8%, Kasota 20%, Moona 16%, Extton 13%, Monak 4.8% and Adina 2%. Some late blight tuber damage was reported in a crop of Sebago at Spring Hill and slight tuber damage was present in experimental plantings of this variety. One crop of 11 acres of Early Manhattan was not considered by the grower to be worth digging because of late blight damage.

Considerable foliage damage occurred at Batlow, although tuber damage did not appear to be great. Sebago was least affected, followed by Sequoia and Monak. Saranac was severely damaged.

-- R. J. CONROY.

BLACKLEG OF POTATOES IN N.S.W. TABLELAND CROPS:

Blackleg (Erwinia atroseptica) (A.P.D.R. 2: 1: 3, 1950; 2: 2: 15, 1950) was serious in Central and Southern Tableland crops in New South Wales during the past season. Mr. R.C. Madsen, District Agronomist at Orange, reported that the varieties Sequoia and Sebago were most affected and some blackleg was present in Factor crops, but none was observed in other varieties. Up to 10% infection took place in some crops on heavy red soils and about 4% on lighter soils. Blackleg was more in evidence in crops on low-lying areas.

Growing conditions over the season in both the Central and Southern Tablelands were abnormally wet.

Following inspection of crops in the Crookwell district, Mr. T.E. Friend, Agronomist, reported that blackleg infection was generally severe in this district. Again the varieties, Sequoia and Sebago, were most severely affected and the disease also occurred in Factor, Katahdin and, to a lesser extent, Saranac. Although Sequoia was most affected in both Central and Southern Tablelands, this may not be due entirely to relative susceptibility of the variety but also to the fact that the majority of the Sequoia seed was large and had to be extensively cut, and this, combined with continued wet weather after planting, increased the severity of blackleg attack.

-- R. J. CONROY.

BEAN SEED CERTIFICATION IN NEW SOUTH WALES:

During the 1949-50 season in N.S.W., 493 acres (110 crops) were inspected and 159 acres (41 crops) passed for certification. An additional 3 small crops were approved as suitable for mother seed. After allowances for flood and wet weather losses, it is expected that about 1700 bushels will be certified. About 67% will be Brown Beauty, 20% Tweed Wonder, 8% Wellington Wonder and the remaining 5% will consist of Goward Special, Hawkesbury Wonder and Windsor Longpod (Goward Special is a pink-seeded selection from Brown Beauty).

As in the preceding two seasons, anthracnose was again responsible for more crop rejections than any other single reason. In Hawkesbury Wonder, as shown in the accompanying table, 10 crops were rejected for the presence of anthracnose compared with only 3 certified.

VARIETY	No. of Crops.				
	Certified	Rejected			
		H.B.	A.	O.R.	TOTAL
Brown Beauty	24	7	4	18	29
Hawkesbury Wonder	3	-	10	8	18
Wellington Wonder	6	2	-	2	4
Tweed Wonder	4	1	-	2	3
Landreth	-	-	4	1	5
Canadian Wonder	-	1	1	1	3
Windsor Longpod	2	-	1	-	1
Clarendon Wonder	-	-	2	-	2
Goward Special	2	-	-	-	-
Richmond Wonder	-	-	1	-	1
TOTALS	41	11	23	32	66

Notes: H.B. = halo blight; A = anthracnose; O.R. = reasons other than the presence of disease (insufficient isolation, crops picked for green beans and crops destroyed by floods or rains after a first inspection.)

After seven years' experience with the Bean Seed Certification Scheme on the South Coast of New South Wales, it appears that halo blight is easier to control by this means than anthracnose. This applies particularly to seasons of above-average rainfall and to varieties which are very susceptible to anthracnose, such as Hawkesbury Wonder and Canadian Wonder. The available evidence suggests that most of the cases of anthracnose infection encountered in crops grown from certified seed have originated from trace seed carry-over from undetected disease in the previous season's crop but other sources of infection, such as other crops in the same locality, or the soil, could be responsible and would serve to explain the appearance of anthracnose in lines which had been apparently free from the disease for several years.

Should the present series of wet seasons be continued, it is anticipated that little, if any, seed of Hawkesbury Wonder will be certified in future and that this variety will tend to be replaced by varieties having some resistance to anthracnose. Field observations and glasshouse seedling inoculation tests have indicated that the Tweed Wonder and Wellington Wonder varieties show good resistance to the strain or strains of anthracnose

commonly occurring in this State. The results so far obtained with Brown Beauty suggest that some commercial lines of this variety comprise a mixture of anthracnose-resistant and anthracnose-susceptible types.

- R. D. WILSON.

OCCURRENCE OF A BACTERIAL WILT DISEASE OF
FRENCH AND NAVY BEANS IN NEW SOUTH WALES:

During the past six months, a bacterial wilt disease of beans has been recorded for the first time in New South Wales in three crops of French beans on the South Coast (two crops of Tweed Wonder and one of Brown Beauty), and in one crop of Small White navy beans on the Northern Tablelands. From the stems and leaves of affected plants, a gram-positive rod-shaped organism, producing a pale yellow to yellow scanty growth on beef extract peptone agar, has been isolated. Stem puncture inoculations of bean seedlings have resulted in the wilting of the leaves within two to three weeks, subsequently followed by death of the plants. An apparently identical organism has been re-isolated from the stem tissue of inoculated plants several inches above the points of inoculation. This re-isolated organism, when inoculated into more seedlings, also produced the same wilt symptoms. Microscopic examination of the stems of wilted plants has shown that the organism is confined to the xylem tissue. Inoculations of bean pods have produced no symptoms.

Although the exact identity of the organism has not been determined, it would appear that it is almost certainly Corynebacterium flaccumfaciens (Hedges) Dowson. In 1934, Adam and Pugsley (Jour. Agr. Victoria 32: 306-308, 1934) reported isolating this organism from bean seed, but, as far as the writer is aware, there has been no other record of it in Australia nor, in fact, any previous Australian record of the occurrence of any such disease in the field. It has probably been present in New South Wales for several years and, if encountered in field inspections, has probably been diagnosed as a fungal root rot. On present knowledge, it does not appear that the disease is, or is likely to be, of any great economic importance.

- R.D. WILSON.

RUST OF RUNNER BEANS:

Bean rust was first recorded in W.A. in 1943, since when it has become more widespread yearly. The popular white seeded runner or pole-bean variety "Prolific" (syn. Golden Harvest, Bountiful) which comprises the majority of commercial plantings, has proved very susceptible, whereas French bean varieties which are grown to a limited extent only, are seldom damaged severely.

Two races have been identified by Professor W.L. Waterhouse from local rust collections, namely races 2 and 17. Control of the disease by routine applications of sulphur or other fungicides proved unsatisfactory, owing in part, to the general practice of watering by overhead sprinklers.

During 1944 and 1945 the rust reactions of a number of imported varieties were tested in the field, in an endeavour to discover a resistant variety. Only one of these showed high resistance, namely a strain of the Brown Seeded Kentucky Wonder runner bean variety, obtained from the Ferry Morse Seed Co. of America. The resistance of this variety to races 17 and 2 was subsequently confirmed in glasshouse tests by Professor W.L. Waterhouse. As this variety was not satisfactory commercially, attempts were made to cross it with Prolific. Hybridisation by artificial means proved unsuccessful, but natural crosses were obtained by growing a row of Prolific plants between rows of Kentucky Wonder. The seed harvested from the former plants yielded about 2% of hybrids in the next generation, which were detected by their rust-resistance and brown seed colour.

Field selection for resistance to rust and other diseases, white seed, and desirable agronomic characters, has been continued through five generations, and it is anticipated that seed of the best line will be bulked in the next Spring crop and released as a new variety for autumn planting. Small quantities of seed of the most promising lines are now available for trial by workers in other States.

- W.P. CASS SMITH.

REACTION OF WESTERN AUSTRALIAN BROWN SEEDED KENTUCKY WONDER TO A STRAIN OF RUST FROM DWARF FRENCH BEANS:

Glasshouse inoculation tests of Brown Seeded Kentucky Wonder seedlings grown from seed supplied by Mr. W.P.Cass Smith have shown that this variety is comparatively resistant to a strain of rust obtained from dwarf French beans in New South Wales. Rust pustules do develop on this variety but they are much smaller and the period between inoculation and pustule development is considerably longer than in the case of susceptible varieties such as Tweed Wonder, Brown Beauty and Hawkesbury Wonder. No tests have yet been made on any of the Kentucky Wonder - Prolific hybrids referred to in the above article.

- R.D. WILSON.

COTTONY LEAK OF BEANS:

A survey of the diseases causing transit losses in Queensland beans is being carried out at present, and particular interest is being focussed on nestiness (Sclerotinia sclerotiorum). In the late summer crop a new trouble appeared, which might be confused with nestiness. The associated fungus was found to be Pythium aphanidermatum (Edson), recorded in U.S.A. (J.A.R. 34: 443-447: 1927) as causing cottony leak of beans. The trouble was noticed at the Brisbane market in beans sent from Stanthorpe, Glen Innes and Passmore during February and March.

Investigations showed that this fungus required a higher temperature for its development than does sclerotiorum, its growth range being from 10° to 44°C, and optimum 33°C. The corresponding figures for the latter were 5° to 31.5°C and 21.5°C. In inoculation experiments on thoroughly washed beans in large petri dishes, the cottony leak fungus attained a diameter of 18 cms. in five days at 25°C, which is much more rapid than growth shown by sclerotiorum under conditions favorable to it.

It is not expected that any great loss from cottony leak will occur, since the high temperatures needed for its maximum development seldom prevail in times when large quantities of beans are being handled in Queensland.

- J.C. JOHNSON.

CARROT SEED PRODUCTION IN NORFOLK ISLAND - A NOTE OF WARNING:

The suggestion by R.D. Wilson that Norfolk Island should be suitable for carrot seed production because of the absence of the carrot virus (A.P.D.R. 2:2:20:1950) would appear to be a solution to the problem of producing seed of susceptible varieties such as Chantenay. However, there may be considerable risk of losing resistance in virus tolerant varieties, if roots were selected and grown for seed in a region where the disease does not occur.

It should be borne in mind that the level of virus tolerance is not high in any of the local selections and, moreover, there is evidence that one variety has already lost a great deal of the virus tolerance which it once possessed. In this case, it is thought that in selecting for quality, insufficient attention has been given to disease resistance.

- L. L. STUBBS.

FRUIT:PSOROSIS OF CITRUS:

There is evidence of this virus disease in all Victorian citrus areas where oranges are grown. A survey now in progress shows the most commonly affected varieties are Washington Navel and Valencia. Psorosis has been recorded on Thompson Navel in a few cases, but so far not on any other variety.

Apart from oranges, the only record of scaly bark is on Red Mandarin in the Mildura district.

Trees under Victorian conditions do not exhibit the bark symptoms in the field until they are some years out from the nursery. The youngest record to date is that of a tree eight years old. In general, the onset of bark scaling takes place in the period twelve to eighteen years from planting out. Young leaf symptoms are seen in the spring growth cycle, more particularly on trees when bark scaling is severe and has been present some time. The diagnostic value of young leaf symptoms on their own is doubtful in some districts where trace element disorders are known to occur.

So far, there is no record of seedling infection to young or old trees.

Generally, the effect of the virus on the host plant is such that by the time an infected tree is 25-30 years of age, it has become severely debilitated and its economic value greatly reduced. A typical case of such age shows extensive scaling of the butt, leaders and even twigs. Gum exudates are evident, and the fruit, though not affected in size and quality, is much reduced in numbers.

- R. D. ANDERSON.

LEMON BARK BLOTCH:

I should be glad to have the opinion of citrus pathologists on the status in Australia of the disease described by McAlpine as lemon bark blotch and attributed to Ascochyta corticola. I have not, during the past 10 years, come across an authentic case in N.S.W.

- L.R. FRASER.

HOT WATER TREATMENT FOR ROOT ROT OF ROUGH LEMON STOCKS:

Bains et al. (Phytopath. 39: 858: 1949, and Citrus Leaves, August, 1949, p. 13) reported having controlled citrus nematode and Phytophthora citrophthora infection in citrus roots by steeping in hot water. An outbreak of Phytophthora root rot amongst two-year-old seedlings in a Sydney Metropolitan nursery provided an opportunity for testing the effect of this treatment on infection and subsequent viability of rough lemon stocks.

The stocks were treated by tying in a loose bundle and immersing in hot water (47°C.) for 10 minutes. They were cooled immediately after treatment and planted within half-an-hour. An equal number of untreated stocks were planted at some distance but in the same type of soil. The soil in which they were planted is sandy and well drained but the rainfall during the period of growth (February-June) kept it continuously damp. The mortality amongst the treated stocks was low (3 out of 28); the remainder made excellent growth, no evidence of root rot was found, and lesions on the main roots healed well. Of the untreated stocks, one died; the remainder made considerable new root growth but Phytophthora infection persisted and all the newly-formed roots were rotted to a greater or lesser extent.

Scab was general on the shoot growth of the untreated stocks but was not present on the treated stocks.

- L. R. FRASER.

CITRUS SCALE PARASITES:

Continuously wet weather during summer and autumn resulted in a strong development of fungus parasites on scale insects in the Coastal area of N.S.W. Sphaerostilbe aurantiicola, predominantly in the imperfect form, was extremely common on the yellow scale and Podonectria coccicola was locally abundant on scale insects which were so thoroughly destroyed as to make identification impossible. Myriangium montagnei and Septobasidium pseudopedicellatum were more abundant than usual and an unidentified species of Cephalosporium was collected on the yellow scale.

- L. R. FRASER.

A NOTE ON D.D.T. - FERMATE. ZERLATE COMBINATIONS.

Experience with the newer fungicides during the past season indicated that Fermate and Zerlate were not compatible with "Rulene" D.D.T. emulsion.

On Packham's Triumph pears, a slight russet was caused by Fermate - Rulene combinations, although Zerlate - Rulene combinations appeared safe. In both cases, the fungicide came out of suspension and floated on the top of the spray vat as a curdy deposit.

No difficulties were encountered when D.D.T. wettable powders were used with the fungicides.

- P.T. JENKINS.

THE EFFECTS OF SOME NEWER FUNGICIDES ON THE DEVELOPMENT OF VARIOUS FRUIT DISEASES:

Newer organic and inorganic fungicides were included in trials on apples, pears, grapes, apricots and peaches during the 1949-50 season.

Climatic conditions in Southern Victoria were particularly favorable for the development of black spot on apples and pears. In spite of the fact that work was not begun until November, valuable information regarding the phytotoxicity and efficacy of new materials in controlling the diseases was obtained.

On apples, Nomersan-zinc oxide, Nomersan and phenyl mercuric chloride exerted an eradicant effect on the fungus. These

materials, together with Zerlate, gave control of black spot comparable with that given by lime sulphur. Fermate, Fermate + P.E.P.S., Fermate + wettable sulphur, Bioquin and copper-zinc-chromate were also included, but results were not promising. None of the treatments, with the exception of lime sulphur, caused foliage burn, but a fruit burn was caused in the phenyl mercuric chloride and copper-zinc-chromate treatments. These treatments had Agral 2 included with them. The injury was observed on both Granny Smith and Rome Beauty apples. Agral 2 was not used with the other treatments.

On pears (var. Packham's Triumph), the late calyx spray was delayed. However, cover sprays of Zerlate, Phenyl mercuric chloride, Bioquin and Nomersan gave control of black spot comparable with that given by cover sprays of Bordeaux mixture. Phenyl mercuric chloride caused a slight russet of the pears. The other treatments caused no injury. Fermate, Fermate + wettable sulphur and copper-zinc, chromate, although they caused no injury, exercised only fair control. Colloidal sulphur gave poor control.

On apricots, cover sprays of Fermate, Fermate + P.E.P.S., Nomersan, Nomersan-zinc oxide, Bioquin, Zerlate, Dithane Z 78 and Phenyl mercuric chloride were used to control brown rot. Bioquin caused a fruit burn, and Phenyl mercuric chloride caused a foliage and fruit burn. Fermate and Fermate + P.E.P.S. left a conspicuous black deposit. No injury resulted from the other treatments. Brown rot did not develop in the orchard, but in cold storage, and when stored at air temperature, its development in sprayed fruits was not as marked as in the control treatment.

On sultanas, a small scale trial indicated that Dithane Z 78 was effective in controlling moulds. Stem withering, due to Botrytis cinerea was also controlled. Nomersan, Zerlate and colloidal sulphur were inferior, although mould development in these treatments was less than in the control.

Limited observations on peaches indicated that Fermate, Nomersan, Dithane Z 78 and Zerlate caused no foliage or fruit injury.

-- P. T. JENKINS.

SEASONAL DEVELOPMENT OF SOME GRAPE AND CITRUS DISEASES IN N.S.W.:

The phenomenally wet season which has been experienced in parts of N.S.W., especially the coast, has resulted in extremely severe outbreaks of some types of disease.

Grape downy mildew. The 1949-50 season was one of the worst on record in Coastal vineyards, particularly in the Hunter River area where flooding had occurred in the 1949 winter. The continuously wet or humid weather made it almost impossible for growers to spray at regular or frequent intervals. The severity of the disease not only greatly reduced yields, but has resulted in many dead or partially dead canes, making pruning a difficult task. In the North-West of N.S.W. downy mildew appeared at Walgett, Moree, Wee Waa and other towns where it had previously been unknown. It also caused considerable foliage injury to Isabella varieties which, in most seasons, are fairly resistant. Black spot also appeared over a wide area on susceptible varieties.

Bitter rot due to *Melanconium fuligineum*, which has not been seen in N.S.W. for many years, was reported to have ruined ripening crops of Isabella types in the North Coast district of Mt. George.

Botrytis cinerea caused a fairly substantial loss of the earlier maturing wine grapes in the M.I.A., following a period of rain in February, but drier conditions during early March prevented its extension to the later maturing wine and table varieties. The Fruit Officer at Orange reports that Botrytis claimed a large part of the grape crop in that district as the result of relatively high humidities prevailing throughout the autumn.

In the lower Murray River Irrigation Settlements, where unusual rains were experienced in February and March, losses of sultanas and currants due to moulding on the vines and on the drying racks were the worst on record.

Brown spot of mandarins, which has not been of much importance since the early 1930's, flared up this season, and fruit and spring and autumn growth were badly attacked.

Citrus brown rot was also more general in Coastal districts than for many years during the autumn and caused substantial losses of unsprayed Washington Navel oranges and lemons. Phytophthora citrophthora appears to have been entirely responsible. Conditions during winter and early spring, 1949, and late autumn and winter, 1950, would seem to have been ideal for *P. hibernalis*, but it was not seen.

ORNAMENTALS:GLADIOLUS STORAGE ROT:

Storage rot due to Penicillium gladioli is unimportant in N.S.W. in most seasons, but this year it was found to have caused losses of up to 5% in some varieties. Commercial crops on the Coast and Central Tablelands, which were dug in the late summer, were chiefly affected. Continuously humid weather which made it hard to dry the corms out thoroughly may have favoured the disease. It is usually stated that Penicillium rot follows injury, but this was not the case in the examples seen. Botrytis gladiolorum was an active cause of storage rot, as was to be expected.

- L. R. FRASER.

GLADIOLUS RING SPOT:

Symptoms of this disease appear on corms during storage and take the form of concentric rings of brown or russet centering on the points of attachment on the leaf veins. It was described in Canada in 1943 (Can. J. Res. Sect. C. 21: 1-9. 1943) but no definite cause was traced.

The browning is limited to the superficial layers of cells and no adverse effect on the growth or flowering results. Progeny of affected corms almost invariably develop the same markings. There appears to be well marked resistance or susceptibility to the disease; one grower recently reported that the whole of his stock of the variety Barcarole was affected, but no others among the several hundred varieties which he grew. The symptoms suggest that the disease may be due to infection with the tomato spotted wilt virus, and this possibility is being investigated.

- L. R. FRASER.

CAMELLIA ROOT ROT:

Phytophthora cinnamomi can cause a root rot of camellias similar to that of citrus caused by P. citrophthora. In a commercial flower farm at Kurrajong Heights, N.S.W., yellowing and die-back of foliage and shoots, associated with rotting of fibrous and main roots of well established 8-10 year old trees was traced to this cause. The soil was unduly wet as the result of excessive rain over the past year. The same fungus was also responsible for high mortality amongst young camellias in several Sydney nurseries.

- L. R. FRASER.

MISCELLANEOUS PLANTS:-VIRUS MOSAIC DISEASE OF BRACKEN FERN (Pteridium aquilinum):

A frond of bracken fern showing chlorotic striping and some distortion of the pinnae, was collected at Oatley recreation park by Mr. W.C. Harland, a fourth year student, who thought the symptoms resembled those of a virus disease.

Sap inoculum was prepared from some of the diseased frond and mechanical inoculation was made onto tobacco, Nicotiana glutinosa, and Datura stramonium. In three days local lesions appeared on Datura and N. glutinosa which resembled those caused by tobacco mosaic virus. Later systemic symptoms typical of tobacco mosaic developed on tobacco and N. glutinosa. Inoculations of the frond sap were also made directly on to fronds of Pteridium aquilinum of different ages, but no symptoms developed on these.

Sap inoculum was prepared from leaves of tobacco affected with tobacco mosaic virus and fronds of Pteridium aquilinum at different stages of maturity were inoculated with this inoculum. The inoculated immature fronds developed symptoms on their pinnae similar to those on the specimen collected at Oatley. The inoculated mature fronds did not give any symptoms.

On this evidence it can be reasonably claimed that the symptoms of mosaic on the bracken fern frond collected by Mr. Harland were due to infection by the tobacco mosaic virus. A search of the literature indicates that this is the first time a virus disease has been recorded on Pteridium aquilinum (c.f. Article by P. Manil, reviewed R.A.M. 29(1): 10: 1949). The diseased fern was growing in a lawn in the recreation park and infection could feasibly come from contact with the fingers of a cigarette smoker contaminated with tobacco mosaic virus. The work of Manil quoted above indicated that extracts from bracken fern had no inhibitory effect on tobacco mosaic virus so that the sap from the diseased frond would not inactivate the virus in the sap, thereby permitting the transmission from the diseased material to the three indicator plants. The failure of direct transmission from fern to fern cannot be explained, except that this frequently occurs in testing plants for viruses.

The specimen collected by Mr. Harland has been submitted to the greening process and is preserved in the Faculty of Agriculture at Sydney University for future reference.

GENERAL AND MISCELLANEOUS NOTES:COLLECTION OF CULTURES OF PLANT PATHOGENS:

The nucleus of a National Type Culture Collection, primarily for plant pathogens, has been established in the Division of Plant Industry, C.S.I.R.O., Canberra. Details of culture types which may be deposited in the Collection have been circulated.

A culture supply and identification service is proposed. The identification service will be restricted initially to a comparison of organisms suspected to be identical with catalogued cultures.

- B. T. DICKSON.

ERROR IN PAGINATION - A.P.D.R. Vol. 2, No. 2, 1950:

An error in pagination occurred in the last issue of A.P.D.R.. Attention is drawn to the fact that this issue covered pages 13 to 27, not pages 1 to 15, and should be re-numbered, accordingly.

- EDITOR.

COMMONWEALTH MYCOLOGICAL INSTITUTE NOTES.A PROPOSAL FOR AN INTERNATIONAL PHYTOPATHOLOGICAL HERBARIUM:

There is a proposal being mooted in Europe and U.S.A. for the establishment of an International Herbarium, with headquarters at the C.M.I., provided the Institute agrees and the money for the plan can be found. The scheme would be organised under an international Committee and would provide for a Mycologist (or two) and herbarium assistants. Checked exsiccata would be issued from the Herbarium to institutions of contributing organisations. Dr. Neergaard of Copenhagen has carried on most of the background organising.

HISTORY OF THE COMMONWEALTH AGRICULTURAL BUREAUX:

Beginning forty odd years ago in the field of entomology, the C.A.B. organisation has expanded its services to all branches of agricultural science and forestry.

In 1909, the Entomological Research Committee (Tropical Africa) was formed with headquarters at the National History Museum, South Kensington. This venture received general approval at the 1911 Imperial Conference and, in 1913, the Imperial Bureau of Entomology, with Empire functions, was established. In January, 1913, the first bureaux abstract journal - The Review of Applied Entomology - appeared.

Mycologists of the Commonwealth were not long in seeking a similar service. Following the approval of the Imperial War Conference of 1918, an Imperial Bureau of Mycology was started at Kew in 1920. R.A.M. first appeared in January, 1922.

The valuable services which the Bureaux of Entomology and Mycology rendered to pathologists soon led to a new and important development. The Imperial Agricultural Research Conference of 1927 recommended establishing eight new bureaux in eight selected branches of agricultural science. In 1928 the Governments of the Commonwealth appointed an organising committee. The Executive Council of the Imperial Agricultural Bureaux came into being in 1929 and the eight bureaux were opened in 1929-30.

The administration of the bureaux is in the hands of this Executive Council, which comprises one member from each of the contributing countries.

As a basic principle, each bureau was located at a research institute working in the same scientific field. The functions of the bureaux resembled those of the two parent bureaux, namely, the collection and dissemination of information of value to research workers, but because the two existing bureaux also undertook identification of insects and fungi, they now assumed the title of "Institutes". A few years later, in 1933, the Imperial Committee on Economic Consultation and Co-operation brought both Institutes under the Executive Council's control. The funds of the Institutes, however, remained separate from the bureaux funds, since they had not been subscribed on any such agreed basis as those of the new bureaux.

The organisation became known as the Commonwealth (formerly Imperial) Agricultural Bureaux in January, 1948, the revised title being considered to represent more accurately the free association of participating Governments.

A publication of 72 pages, dealing with the history, work, administration and finance of C.A.B. is now available.

- C.J. MAGEE.

